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IMAGE FOCUS

Sutureless bioprosthesis thrombosis

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We reported the case of a 79-year-old patient who underwent surgical aortic valve replacement with a bioprosthetic Sorin Perceval L valve for symptomatic severe aortic stenosis. The intervention was carried out without complications. Postoperative transthoracic echocardiography (TTE) estimated a peak (PG) and mean (MG) gradient of 22 mmHg and 12 mmHg, respectively, and an aortic valve area of 1.7cm^2 by the continuity equation. In the following weeks, the patient complained of progressive dyspnoea (class III NYHA) and a significant increase in transaortic pressure gradients was identified at TTE (PG/MG of 60/35 mmHg) (Figure 1, panel A). Transesophageal echocardiography (TOE) showed reduced mobility and degree of opening of the aortic prosthesis cusps with an almost complete fusion of the right and non-coronary cusp (Figure 1, panel B). A cardiac scanner revealed marked leaflets thickening but no thrombus was identified (Figure 1, panel C).

Direct oral anticoagulation (DOAC) was initiated but switched to AVK in the absence of a beneficial effect. A control (TOE) was performed after 2 weeks of full AVK treatment, showing a marked improvement in the leaflet mobility and opening (Figure 2, panel A) with a concomitant regression of transvalvular pressure gradients (Figure 2, panel B). A repeat cardiac scanner also confirmed an improvement in the valve opening area (Figure 2, panel C).

According to recent data, aortic bioprosthetic thromboses are often underdiagnosed, are a risk factor for stroke and could be associated with early degeneration of the prosthesis. The causes of thrombosis are yet currently unclear. With regard to sutureless valves, the study by Dalen et al. hypothesised that the risk of thrombosis is even greater in valves mounted on a stent, that need crimping/collapsing of the leaflets and balloon dilation. Moreover, the question of a perfect size for Perceval valves is still debated. Postoperative management of bioprosthesis sutureless valves is not standardised but generally requires a simple antiplatelet therapy. This case highlighted that early thrombosis can also be observed with a Perceval valve, that a cardiac CT scan could miss the diagnosis since it remains an operator-dependent technique and that DOACs do not seem to be effective in such cases.

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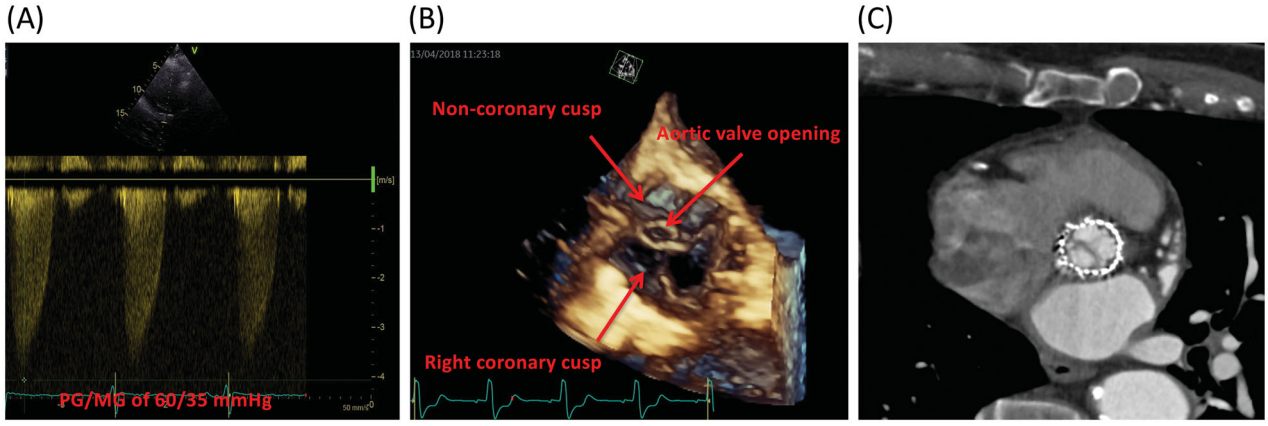

Figure 1. 2D/3D echocardiography and cardiac scanner of the aortic valve before antioagulation treatment.

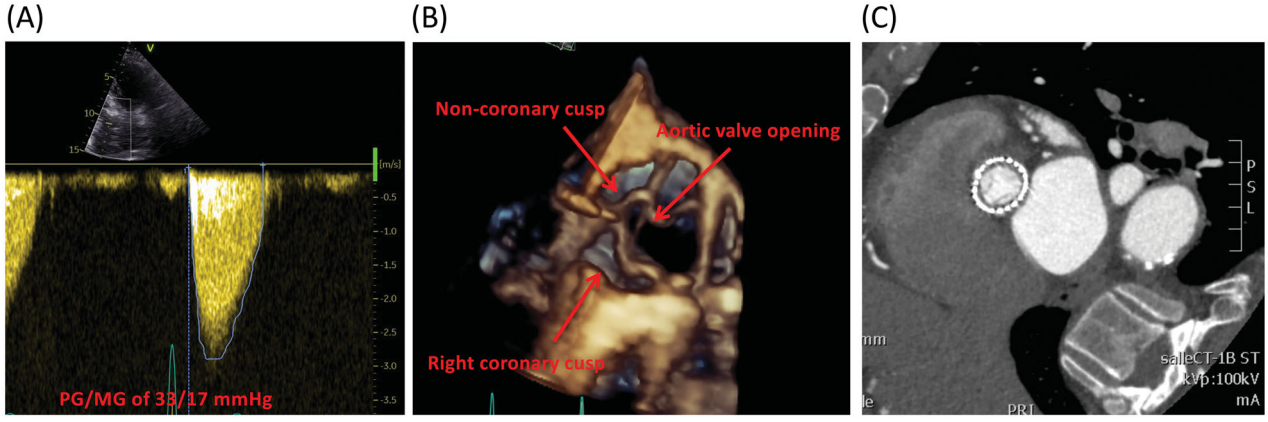

Figure 2. 2D/3D echocardiography and cardiac scanner of the aortic valve after antioagulation treatment.

Disclosure statement

No conflict of interests to declare.